ICF INTERNATIONAL

**ICF international / Laboratory Data Consultants**
Environmental Services Assistance Team, Region 9
1337 South 46th Street, Building 201, Richmond, CA 94804-4698
Phone: (510) 412-2300; Fax: (510) 412-2304.

MEMORANDUM

TO: Chris Lichens, Remedial Project Manager
Site Cleanup Section 4, SFD-7-4

THROUGH: Rose Fong, ESAT Task Order Manager (TOM) RF
Quality Assurance (QA) Program, MTS-3

FROM: Doug Lindelof, Data Review Task Manager
Region 9 Environmental Services Assistance Team (ESAT)

ESAT Contract No.: EP-W-06-041
Technical Direction Form No.: 00105077 Amendment 3

DATE: September 24, 2007

SUBJECT: Review of Analytical Data, **Tier 2**

Attached are comments resulting from ESAT Region 9 review of the following analytical data:

| | |
|---|---|
| Site: | Omega Chem OU2 |
| Site Account No.: | 09 BC LA02 |
| CERCLIS ID NO.: | CAD042245001 |
| Case No.: | 36520 |
| SDG No.: | Y3CJ1, Y3CL1, and Y3CQ1 |
| Laboratory: | Shealy Environmental Services, Inc. (SHEALY) |
| Analysis: | Trace Volatiles and Volatiles Selective Ion Monitoring (SIM) |
| Samples: | 50 Ground Water Samples (see Case Summary) |
| Collection Date: | July 9 through 13, 16 , and 23 through 26, 2007 |
| Reviewer: | Santiago Lee, ESAT/Laboratory Data Consultants |

This report has been reviewed by the EPA TOM for the ESAT contract, whose signature appears above.

If there are any questions, please contact Rose Fong (QA Program/EPA) at (415) 972-3812.

Attachment

cc: Cynthia Gurley, CLP PO USEPA Region 4
Steve Remaley, CLP PO USEPA Region 9

CLP PO: [X] Attention [ ] Action

SAMPLING ISSUES: [X] Yes [ ] No

00105077-8362/36520/Y3CJ1+L1+Q1-TV+VS-T2

Data Validation Report – **Tier 2**

Case No.: 36520
SDG No.: Y3CJ1, Y3CL1, and Y3CQ1
Site: Omega Chem OU2
Laboratory: Shealy Environmental Services, Inc.
Reviewer: Santiago Lee, ESAT/LDC
Date: September 24, 2007

## I. CASE SUMMARY

Sample Information

| | |
|---|---|
| Samples: | (SDG Y3CJ1) Y3CJ1 through Y3CL0<br>(SDG Y3CL1) Y3CL1 through Y3CM2<br>(SDG Y3CQ1) Y3CQ1 through Y3CR8 |
| Concentration and Matrix: | Low Concentration Water |
| Analysis: | Trace Volatiles and Volatiles SIM |
| SOW: | SOM01.1 and Modification Reference No. 1363.2 |
| Collection Date: | July 9 through 13, 16 and 23 through 26, 2007 |
| Sample Receipt Date: | July 10 through 14, 17, and 24 through 27, 2007 |
| Extraction Date: | Not Applicable |
| Analysis Date: | (Trace Volatiles) July 13, 16 through 18, 20, 23 through 27, and 30, 2007<br>(Volatiles SIM) July 19, 25 through 27, and 31, 2007 |

Field QC

| | |
|---|---|
| Field Blanks (FB): | Y3CJ6, Y3CK1, Y3CK6, Y3CL2, Y3CL8, Y3CM2, Y3CQ2, Y3CQ7, Y3CR3, and Y3CR5 |
| Equipment Blanks (EB): | Not Provided |
| Trip Blank (TB): | Not Provided |
| Background Samples (BG): | Not Provided |
| Field Duplicates (D1): | Y3CJ4 and Y3CJ5 |
| Field Duplicates (D2): | Y3CK9 and Y3CL0 |

Laboratory QC

Method Blanks & Associated Samples:

| | |
|---|---|
| VBLK13: | Y3CJ1 through Y3CK2, Y3CK6, Y3CJ9DL, Y3CK0DL, Y3CJ4DL, Y3CJ5DL, Y3CK2MS, Y3CK2MSD |
| VBLK16: | Y3CK3 through Y3CK5, Y3CK7, Y3CK8; Y3CL3, Y3CL7, Y3CL8, Y3CL6 |
| VBLK17: | Y3CK8RE, Y3CK3DL, Y3CK4DL; Y3CL1DL, Y3CL6DL, Y3CL7RE, Y3CL2, Y3CL3DL, Y3CL4 |
| VBLK18: | Y3CK9, Y3CL0, VHBLK23; Y3CL9 through Y3CM2, Y3CL5DL, Y3CL5, Y3CL1 |
| VBLK20: | Y3CK9DL, Y3CL0DL; Y3CM1DL, Y3CL1RE, VHBLK24 |
| VBLK25: | VHBLK23RE; Y3CQ2RE, Y3CQ1RE |
| VBLK2X: | Y3CQ1, Y3CQ2 |
| VBLK26: | Y3CQ7, Y3CQ9, Y3CR0 through Y3CR3 |
| VBLK1D: | Y3CQ3, Y3CQ3DL through Y3CQ6DL, Y3CQ8DL, Y3CQ9DL2, Y3CQ8, Y3CQ8MS, Y3CQ8MSD, Y3CQ4 through Y3CQ6, Y3CQ9DL, Y3CR4, Y3CR7 |
| VBLK30: | Y3CR8, Y3CR5, Y3CR6DL, Y3CR6, VHBLK39 |
| VBLK99: | (Volatiles SIM) Y3CJ1 through Y3CL7, VHBLK23 |

VBLK25: (Volatiles SIM) Y3CL8 through Y3CM2, VHBLK24
VBLK26: (Volatiles SIM) Y3CQ1 through Y3CR3
VBLK27: (Volatiles SIM) Y3CR4 through Y3CR8
VBLK31: (Volatiles SIM) Y3CR7RE, Y3CR8RE, VHBLK39

Tables

1B: Data Qualifier Definitions for Organic Data Review

CLP PO Action

None.

CLP PO Attention

1. Detected results for some analytes are qualified as nondetected and estimated (U,J) due to method blank contamination (see Comment B).

2. Results for acetone in Y3CQ1RE and Y3CQ2RE are qualified as estimated (J) due to calibration problems (see Comment C).

3. Results for trans-1,2-dichloroethene in Y3CL1RE and cis-1,2-dichloroethene in Y3CK9DL, Y3CL0DL, and Y3CL1RE are qualified as estimated (J) due to deuterated monitoring compound (DMC) recovery problems (see Comment D).

Sampling Issues

1. The sampler signature is missing on the traffic report & chain of custody record (TR/COC) for samples collected on 07/16/07 (see attached TR/COC, p. 7 in Y3CL1 data package).

2. For the TR/COC for samples collected on 07/24/07, the sampler signature is missing and Signature and Date/Time blocks for "Relinquished By" were not completed (see attached TR/COC, p. 6 in Y3CQ1 data package)

Additional Comments

**As directed by the TOM, a Tier 2 review (i.e., verify EXES R-flags, except where alternate non-rejected data exist. Where R-flags are removed, perform Tier 1A forms review and apply appropriate qualifiers) was performed. A Table 1A is not requested.**

The following results were R-flagged by EXES:
(1) Nondetected results for 1,4-dioxane in trace volatiles and volatiles SIM analyses because relative response factors (RRFs) were below 0.01. A Tier 1A review was not performed for 1,4-dioxane since alternate non-rejected data exist for all field samples in the semivolatile selective ion monitoring (SIM) analysis; field blanks were not analyzed.

(2) SDG Y3CJ1: Results for all analytes in Y3CK9DL, Y3CL0DL, and VBLK20 in trace volatiles analysis because they "had no associated continuing calibration"; the closing continuing calibration verification (CCV) for 07/20/07 was not analyzed (see attached Form 5A, p. 25 in data package). Since a CCV was not analyzed on the next day, only the 07/20/07 initial calibration was used for data qualification. The EXES R-flags were removed, a Tier 1A forms review was performed, and appropriate qualifiers were applied (see Comments A through D).
(3) SDG Y3CJ1: Results for all analytes in Y3CK9DL, Y3CL0DL, VBLK20, VBLK25, and VHBLK23RE in trace volatiles analysis because they "are associated with a opening and closing CCV that are not analyzed at the correct frequency"; the closing CCV for 07/25/07 was not analyzed (see attached Form 5A, p. 27 in data package). Since a CCV was not analyzed on the next day, only the 07/25/07 opening CCV was used for data qualification. The EXES R-flags were removed, a Tier 1A forms review was performed, and appropriate qualifiers were applied (see Comments A through D).
(4) SDG Y3CL1: Results for all analytes in Y3CL1RE, Y3CM1DL, VBLK20, and VHBLK24 in trace volatiles analysis because they "had no associated continuing calibration" and "are associated with a opening and closing CCV that are not analyzed at the correct frequency"; the closing CCV for 07/20/07 was not analyzed (see attached Form 5A, p. 18 in data package). Since a CCV was not analyzed on the next day, only the 07/20/07 initial calibration was used for data qualification. The EXES R-flags were removed, a Tier 1A forms review was performed, and appropriate qualifiers were applied (see Comments A through D).
(5) SDG Y3CQ1: Results for all analytes in Y3CQ1RE, Y3CQ2RE, and VBLK25 in trace volatiles analysis because they "are associated with a opening and closing CCV that are not analyzed at the correct frequency"; the closing CCV for 07/25/07 was not analyzed (see attached Form 5A, p. 21 in data package). A CCV was analyzed on 07/26/07 06:07, which was used as the 07/25/07 closing CCV for data qualification. The EXES R-flags were removed, a Tier 1A forms review was performed, and appropriate qualifiers were applied (see Comments A through D).

This report was prepared in accordance with the following documents:

- ESAT Region 9 Standard Operating Procedure 901, *Guidelines for Data Review of Contract Laboratory Program Analytical Services Volatile and Semivolatile Data Packages*;
- *USEPA Contract Laboratory Program Statement of Work for Organics Analysis, Multi-Media, Multi-Concentration,* SOM01.1, May 2005; and
- *USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review*, January 2005.

## II. VALIDATION SUMMARY

The data were evaluated based on the following parameters:

| | Parameter | Acceptable | Comment |
|---|---|---|---|
| 1. | Holding Time/Preservation | Yes | |
| 2. | GC/MS Tune/GC Performance | Yes | |
| 3. | Initial Calibration | No | C |
| 4. | Continuing Calibration | No | C |
| 5. | Laboratory Blanks | No | B |
| 6. | Field Blanks | N/A | |
| 7. | Deuterated Monitoring Compounds | No | D |
| 8. | Matrix Spike/Matrix Spike Duplicates | N/A | |
| 9. | Laboratory Control Samples/Duplicates | N/A | |
| 10. | Internal Standards | Yes | |
| 11. | Compound Identification | N/A | |
| 12. | Compound Quantitation | N/A | A |
| 13. | System Performance | N/A | |
| 14. | Field Duplicate Sample Analysis | N/A | |

N/A = Not Applicable

## III. VALIDITY AND COMMENTS

A. The following results are qualified as estimated and should be flagged "J".

- All detected results below the contract required quantitation limits

*Results below the contract required quantitation limits (CRQLs) are considered to be qualitatively acceptable, but quantitatively unreliable, due to the uncertainty in analytical precision near the limit of detection.*

B. The following results are qualified as nondetected and estimated due to method blank contamination and should be flagged "U,J".

- Chloromethane in Y3CL0DL, Y3CL1RE, and Y3CM1DL and storage blank VHBLK24
- 1,1-Dichloroethene in Y3CM1DL and Y3CQ2RE and storage blank VHBLK23RE
- Methylene chloride in Y3CK9DL, Y3CL0DL, Y3CL1RE, Y3CM1DL, Y3CQ1RE, and Y3CQ2RE and storage blanks VHBLK24 and VHBLK23RE
- 2-Butanone in Y3CM1DL
- Chloroform in Y3CK9DL, Y3CL0DL, Y3CL1RE, and Y3CM1DL and storage blank VHBLK24

Chloromethane, 1,1-dichloroethene, methylene chloride, 2-butanone, and chloroform were found in method blank VBLK20 and 1,1-dichloroethene and methylene chloride were found in method blank VBLK25. Results for the samples

listed above are considered nondetected and estimated (U,J) and quantitation limits have been raised according to blank qualification rules presented below.

No positive results are reported unless the concentration of the compound in the sample exceeds 10 times the amount in any associated blank for common laboratory contaminants or 5 times the amount for other compounds. If the sample result is greater than the CRQL, the quantitation limit is raised to the sample result and reported as nondetected. If the sample result is less than the CRQL, the result is reported as nondetected at the CRQL.

1,1-Dichloroethene results for Y3CK9DL (280 $\mu$g/L), Y3CL0DL (150 $\mu$g/L), and Y3CL1RE (240 $\mu$g/L) are not qualified as nondetected and estimated since their concentrations exceed 5 times the amount in the associated method blank VBLK20.

*A laboratory method blank is laboratory reagent water or baked sand analyzed with all reagents, deuterated monitoring compounds, and internal standards and carried through the same sample preparation and analytical procedures as the field samples. The laboratory method blank is used to determine the level of contamination introduced by the laboratory during analysis.*

C. Results for the following analyte are qualified as estimated due to low RRFs in initial and continuing calibrations and should be flagged "J".

- Acetone in Y3CQ1RE and Y3CQ2RE, method blank VBLK25, and storage blank VHBLK23RE

An average RRF of 0.0492 was reported for acetone in the 07/23/07 initial calibration; a RRF of 0.0475 was reported for acetone in the 07/25/07 CCV. These values are below the 0.050 validation criterion.

Detected results for acetone may be biased low and should be considered as the minimum concentrations at which acetone is present in the samples. Where results are nondetected, false negatives may exist.

*The RRF evaluates instrument sensitivity and is used in the quantitation of target analytes.*

D. Results for the following analytes are qualified as estimated due to DMC recoveries above QC limit and should be flagged "J".

{1,1-Dichloroethene-d2}
- trans-1,2-Dichloroethene and cis-1,2-dichloroethene in Y3CL1RE
- cis-1,2-Dichloroethene in Y3CK9DL and Y3CL0DL

DMC recoveries above QC limit are shown below.

| Sample | DMC | % Recovery | QC Limits |
|---|---|---|---|
| Y3CK9DL | 1,1-Dichloroethene-d2 | 137 | 55-104 |
| Y3CL0DL | 1,1-Dichloroethene-d2 | 116 | 55-104 |
| Y3CL1RE | 1,1-Dichloroethene-d2 | 381 | 55-104 |

Qualified results may be biased high. For DMC recoveries that exceeded QC limits, only detected results for associated analytes are qualified.

*Surrogates (e.g., deuterated monitoring compounds (DMCs)) are organic compounds which are similar to the target analytes in chemical composition and behavior in the analytical process, but which are not normally found in environmental samples. All samples are spiked with DMCs prior to purging. DMCs provide information about both the laboratory performance on individual samples and the possible effects of the sample matrix on the analytical results.*

## TABLE 1B

## DATA QUALIFIER DEFINITIONS FOR ORGANIC DATA REVIEW

The definitions of the following qualifiers are prepared according to the document, "USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review," January 2005.

U The analyte was analyzed for, but was not detected at a level greater than or equal to the level of the adjusted Contract Required Quantitation Limit (CRQL) for sample and method.

L Indicates results which fall below the Contract Required Quantitation Limit. Results are estimated and are considered qualitatively acceptable but quantitatively unreliable due to uncertainties in the analytical precision near the limit of detection.

J The analyte was positively identified and the associated numerical value is the approximate concentration of the analyte in the sample (due either to the quality of the data generated because certain quality control criteria were not met, or the concentration of the analyte was below the CRQL).

NJ The analysis indicates the presence of an analyte that has been "tentatively identified" and the associated numerical value represents its approximate concentration.

UJ The analyte was not detected at a level greater than or equal to the adjusted CRQL. However, the reported adjusted CRQL is approximate and may be inaccurate or imprecise.

R The sample results are unusable due to the quality of the data generated because certain criteria were not met. The analyte may or may not be present in the sample.

# USEPA Contract Laboratory Program
# Organic Traffic Report & Chain of Custody Record

| | |
|---|---|
| **Case No:** | 36520 |
| DAS No: | |
| SDG No: | Y3CL1 Y3CL3 L |

| | |
|---|---|
| Date Shipped: | 7/16/2007 |
| Carrier Name: | FedEx |
| Airbill: | 862063630622 |
| Shipped to: | Shealy Environmental<br>106 Vantage Point Drive<br>Cayce SC 29033<br>(803) 791-9700 |

| Chain of Custody Record | | Sampler Signature: | |
|---|---|---|---|
| Relinquished By | (Date / Time) | Received By | (Date / Time) |
| 1 | 7-16-07 1600 | | |
| 2 | | | |
| 3 | | | |
| 4 | | 7/17/07 0940 | |

**For Lab Use Only**

| | |
|---|---|
| Lab Contract No: | EPW05031 |
| Unit Price: | |
| Transfer To: | |
| Lab Contract No: | |
| Unit Price: | |

| ORGANIC SAMPLE No. | MATRIX/ SAMPLER | CONC/ TYPE | ANALYSIS/ TURNAROUND | TAG No./ PRESERVATIVE/ Bottles | STATION LOCATION | SAMPLE COLLECT DATE/TIME | | INORGANIC SAMPLE No. | FOR LAB USE ONLY Sample Condition On Receipt |
|---|---|---|---|---|---|---|---|---|---|
| Y3CL9 | Ground Water/ Robert Hernandez | L/G | BNA/1,4-Di (21), SIM TVOA (21) | 182 (Ice Only), 183 (Ice Only), 184 (HCL), 185 (HCL), 186 (HCL), 187 (HCL) (6) | Y3CL9 | S: 7/16/2007 | 10:00 | | OK |
| Y3CM0 | Ground Water/ Robert Hernandez | L/G | BNA/1,4-Di (21), SIM TVOA (21) | 188 (Ice Only), 189 (Ice Only), 190 (HCL), 191 (HCL), 192 (HCL), 193 (HCL) (6) | Y3CM0 | S: 7/16/2007 | 11:10 | | |
| Y3CM1 | Ground Water/ Robert Hernandez | L/G | SIM TVOA (21) | 196 (HCL), 197 (HCL), 198 (HCL), 199 (HCL) (4) | Y3CM1 | S: 7/16/2007 | 12:30 | | |
| Y3CM2 | Ground Water/ Robert Hernandez | L/G | SIM TVOA (21) | 200 (HCL), 201 (HCL), 202 (HCL), 203 (HCL) (4) | Y3CM2 | S: 7/16/2007 | 13:00 | | |

| | | | | |
|---|---|---|---|---|
| Shipment for Case Complete?N | Sample(s) to be used for laboratory QC: | Additional Sampler Signature(s): | Cooler Temperature Upon Receipt: 4.8 | Chain of Custody Seal Number: NA |
| Analysis Key: | Concentration: L = Low, M = Low/Medium, H = High | Type/Designate: Composite = C, Grab = G | Custody Seal Intact? X | Shipment Iced? X |

BNA/1,4-DI = BNA/1,4-Dioxane, SIM TVOA = CLP TCL Volatiles (including SIM)

7 of 1226

**TR Number: 9-373659945-071607-0001**

**LABORATORY COPY**

PR provides preliminary results. Requests for preliminary results will increase analytical costs.
Send Copy to: Sample Management Office, 2000 Edmund Halley Dr., Reston, VA. 20191-3400 Phone 703/264-9348 Fax 703/264-9222

# USEPA Contract Laboratory Program
# Organic Traffic Report & Chain of Custody Record

**Case No:** 36520
DAS No:
SDG No: Y3CQ1

L

| | |
|---|---|
| Date Shipped: | 7/24/2007 |
| Carrier Name: | FedEx |
| Airbill: | 790789577256 |
| Shipped to: | Shealy Environmental<br>106 Vantage Point Drive<br>Cayce SC 29033<br>(803) 791-9700 |

**Chain of Custody Record**

| Relinquished By | (Date / Time) | Received By | (Date / Time) |
|---|---|---|---|
| 1 | | | |
| 2 | | | |
| 3 | | | |
| 4 | | [signature] 7/25/07 | 0835 |

Sampler Signature:

**For Lab Use Only**

Lab Contract No: EPW05031
Unit Price:
Transfer To:
Lab Contract No:
Unit Price:

| ORGANIC SAMPLE No. | MATRIX/ SAMPLER | CONC/ TYPE | ANALYSIS/ TURNAROUND | TAG No./ PRESERVATIVE/ Bottles | STATION LOCATION | SAMPLE COLLECT DATE/TIME | | INORGANIC SAMPLE No. | FOR LAB USE ONLY Sample Condition On Receipt |
|---|---|---|---|---|---|---|---|---|---|
| Y3CQ3 | Ground Water/ Mike Ladeau | L/G | 1,4-Dioxan (21), VOC's w/SI (21) | 324 (Ice Only), 325 (Ice Only), 326 (HCL), 327 (HCL), 328 (HCL), 329 (HCL) (6) | Y3CQ3 | S: 7/24/2007 | 8:25 | | 0 |
| Y3CQ4 | Ground Water/ Mike Ladeau | L/G | 1,4-Dioxan (21), VOC's w/SI (21) | 330 (Ice Only), 331 (Ice Only), 332 (HCL), 333 (HCL), 334 (HCL), 335 (HCL) (6) | Y3CQ4 | S: 7/24/2007 | 9:15 | | |
| Y3CQ5 | Ground Water/ Mike Ladeau | L/G | 1,4-Dioxan (21), VOC's w/SI (21) | 336 (Ice Only), 337 (Ice Only), 338 (HCL), 339 (HCL), 340 (HCL), 341 (HCL) (6) | Y3CQ5 | S: 7/24/2007 | 10:05 | | |
| Y3CQ6 | Ground Water/ Mike Ladeau | L/G | 1,4-Dioxan (21), VOC's w/SI (21) | 342 (Ice Only), 343 (Ice Only), 344 (HCL), 345 (HCL), 346 (HCL), 347 (HCL) (6) | Y3CQ6 | S: 7/24/2007 | 10:45 | | |
| Y3CQ7 | Ground Water/ Mike Ladeau | L/G | VOC's w/SI (21) | 348 (HCL), 349 (HCL), 350 (HCL), 351 (HCL) (4) | Y3CQ7 | S: 7/24/2007 | 12:00 | | |

| | | | | |
|---|---|---|---|---|
| Shipment for Case Complete?N | Sample(s) to be used for laboratory QC: | Additional Sampler Signature(s): | Cooler Temperature Upon Receipt: 3.1 | Chain of Custody Seal Number: NA |
| Analysis Key: | Concentration: L = Low, M = Low/Medium, H = High | Type/Designate: Composite = C, Grab = G | Custody Seal Intact? Y | Shipment Iced? Y |

1,4-Dioxan = 1,4-Dioxane, VOC's w/SI = VOC's w/SIM

**TR Number: 9-330248053-072407-0001**

**LABORATORY COPY**

PR provides preliminary results. Requests for preliminary results will increase analytical costs.
Send Copy to: Sample Management Office, 2000 Edmund Halley Dr., Reston, VA. 20191-3400 Phone 703/264-9348 Fax 703/264-9222

5A - FORM V VOA
VOLATILE ORGANIC INSTRUMENT
PERFORMANCE CHECK
BROMOFLUOROBENZENE (BFB)

EPA SAMPLE NO.
BFB20

Lab Name: Shealy Environmental Services, Inc. Contract: EP-W-05-031

Lab Code: SHEALY Case No.: 36520 Mod. Ref No.: _____ SDG No.: Y3CJ1

Lab File ID: 80720A01B BFB Injection Date: 07/20/2007

Instrument ID: MSD8 BFB Injection Time: 0619

GC Column: DB-624 ID: 0.25 (mm)

| m/e | ION ABUNDANCE CRITERIA | % RELATIVE ABUNDANCE |
|---|---|---|
| 50 | 15.0 - 40.0% of mass 95 | 18.3 |
| 75 | 30.0 - 80.0% of mass 95 | 54.1 |
| 95 | Base peak, 100% relative abundance | 100.0 |
| 96 | 5.0 - 9.0% of mass 95 | 7.1 |
| 173 | Less than 2.0% of mass 174 | 0.0 ( 0.0 ) 1 |
| 174 | 50.0 - 120% of mass 95 | 77.8 |
| 175 | 5.0 - 9.0% of mass 174 | 6.4 ( 8.2 ) 1 |
| 176 | 95.0 - 101% of mass 174 | 78.0 (100.3 ) 1 |
| 177 | 5.0 - 9.0% of mass 176 | 5.8 ( 7.5 ) 2 |

1-Value is %mass 174 2-Value is %mass 176

| | EPA SAMPLE NO. | LAB SAMPLE ID | LAB FILE ID | DATE ANALYZED | TIME ANALYZED |
|---|---|---|---|---|---|
| 01 | VSTD0.520 | VSTD0.520 | 80720A03 | 07/20/2007 | 0651 |
| 02 | VSTD00120 | VSTD00120 | 80720A04 | 07/20/2007 | 0713 |
| 03 | VSTD00520 | VSTD00520 | 80720A05 | 07/20/2007 | 0736 |
| 04 | VSTD01020 | VSTD01020 | 80720A06 | 07/20/2007 | 0758 |
| 05 | VSTD02020 | VSTD02020 | 80720A07 | 07/20/2007 | 0821 |
| 06 | VBLK20 | IQ60996-001 | 80720A08 | 07/20/2007 | 0843 |
| 07 | Y3CK9DL | IG13023-003 | 80720A13 | 07/20/2007 | 1055 |
| 08 | Y3CL0DL | IG13023-004 | 80720A14 | 07/20/2007 | 1117 |
| 09 | | | | | |
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SOM01.1 (5/2005)

5A - FORM V VOA
VOLATILE ORGANIC INSTRUMENT
PERFORMANCE CHECK
BROMOFLUOROBENZENE (BFB)

EPA SAMPLE NO.
BFB25

Lab Name: Shealy Environmental Services, Inc. Contract: EP-W-05-031

Lab Code: SHEALY Case No.: 36520 Mod. Ref No.: _____ SDG No.: Y3CJ1

Lab File ID: 90725A01A BFB Injection Date: 07/25/2007

Instrument ID: MSD9 BFB Injection Time: 0600

GC Column: DB-624 ID: 0.25 (mm)

| m/e | ION ABUNDANCE CRITERIA | % RELATIVE ABUNDANCE |
|---|---|---|
| 50 | 15.0 - 40.0% of mass 95 | 28.0 |
| 75 | 30.0 - 80.0% of mass 95 | 45.8 |
| 95 | Base peak, 100% relative abundance | 100.0 |
| 96 | 5.0 - 9.0% of mass 95 | 6.4 |
| 173 | Less than 2.0% of mass 174 | 0.0 ( 0.0 ) 1 |
| 174 | 50.0 - 120% of mass 95 | 87.6 |
| 175 | 5.0 - 9.0% of mass 174 | 6.6 ( 7.5 ) 1 |
| 176 | 95.0 - 101% of mass 174 | 83.5 ( 95.4 ) 1 |
| 177 | 5.0 - 9.0% of mass 176 | 5.9 ( 7.1 ) 2 |

1-Value is %mass 174 2-Value is %mass 176

| | EPA SAMPLE NO. | LAB SAMPLE ID | LAB FILE ID | DATE ANALYZED | TIME ANALYZED |
|---|---|---|---|---|---|
| 01 | VSTD00525 | VSTD00525 | 90725A02 | 07/25/2007 | 0621 |
| 02 | VBLK25 | IQ61293-001 | 90725A03 | 07/25/2007 | 0644 |
| 03 | VHBLK23RE | IG10025-007 | 90725A16 | 07/25/2007 | 1152 |
| 04 | | | | | |
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SOM01.1 (5/2005)

5A - FORM V VOA
VOLATILE ORGANIC INSTRUMENT
PERFORMANCE CHECK
BROMOFLUOROBENZENE (BFB)

EPA SAMPLE NO.
BFB20

Lab Name: Shealy Environmental Services, Inc. Contract: EP-W-05-031

Lab Code: SHEALY Case No.: 36520 Mod. Ref No.: _____ SDG No.: Y3CL1

Lab File ID: 80720A01B BFB Injection Date: 07/20/2007

Instrument ID: MSD8 BFB Injection Time: 0619

GC Column: DB-624 ID: 0.25 (mm)

| m/e | ION ABUNDANCE CRITERIA | % RELATIVE ABUNDANCE |
|---|---|---|
| 50 | 15.0 - 40.0% of mass 95 | 18.3 |
| 75 | 30.0 - 80.0% of mass 95 | 54.1 |
| 95 | Base peak, 100% relative abundance | 100.0 |
| 96 | 5.0 - 9.0% of mass 95 | 7.1 |
| 173 | Less than 2.0% of mass 174 | 0.0 ( 0.0 ) 1 |
| 174 | 50.0 - 120% of mass 95 | 77.8 |
| 175 | 5.0 - 9.0% of mass 174 | 6.4 ( 8.2 ) 1 |
| 176 | 95.0 - 101% of mass 174 | 78.0 (100.3 ) 1 |
| 177 | 5.0 - 9.0% of mass 176 | 5.8 ( 7.5 ) 2 |

1-Value is %mass 174 2-Value is %mass 176

| | EPA SAMPLE NO. | LAB SAMPLE ID | LAB FILE ID | DATE ANALYZED | TIME ANALYZED |
|---|---|---|---|---|---|
| 01 | VSTD0.520 | VSTD0.520 | 80720A03 | 07/20/2007 | 0651 |
| 02 | VSTD00120 | VSTD00120 | 80720A04 | 07/20/2007 | 0713 |
| 03 | VSTD00520 | VSTD00520 | 80720A05 | 07/20/2007 | 0736 |
| 04 | VSTD01020 | VSTD01020 | 80720A06 | 07/20/2007 | 0758 |
| 05 | VSTD02020 | VSTD02020 | 80720A07 | 07/20/2007 | 0821 |
| 06 | VBLK20 | IQ60996-001 | 80720A08 | 07/20/2007 | 0843 |
| 07 | Y3CM1DL | IG17012-003 | 80720A12 | 07/20/2007 | 1032 |
| 08 | Y3CL1RE | IG13025-001 | 80720A15 | 07/20/2007 | 1140 |
| 09 | VHBLK24 | IG13025-003 | 80720A17 | 07/20/2007 | 1224 |
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5A - FORM V VOA
VOLATILE ORGANIC INSTRUMENT
PERFORMANCE CHECK
BROMOFLUOROBENZENE (BFB)

EPA SAMPLE NO.
BFB25

Lab Name: Shealy Environmental Services, Inc. Contract: EP-W-05-031

Lab Code: SHEALY Case No.: 36520 Mod. Ref No.: _____ SDG No.: Y3CQ1

Lab File ID: 90725A01A BFB Injection Date: 07/25/2007

Instrument ID: MSD9 BFB Injection Time: 0600

GC Column: DB-624 ID: 0.25 (mm)

| m/e | ION ABUNDANCE CRITERIA | % RELATIVE ABUNDANCE | |
|---|---|---|---|
| 50 | 15.0 - 40.0% of mass 95 | 28.0 | |
| 75 | 30.0 - 80.0% of mass 95 | 45.8 | |
| 95 | Base peak, 100% relative abundance | 100.0 | |
| 96 | 5.0 - 9.0% of mass 95 | 6.4 | |
| 173 | Less than 2.0% of mass 174 | 0.0 | ( 0.0 ) 1 |
| 174 | 50.0 - 120% of mass 95 | 87.6 | |
| 175 | 5.0 - 9.0% of mass 174 | 6.6 | ( 7.5 ) 1 |
| 176 | 95.0 - 101% of mass 174 | 83.5 | ( 95.4 ) 1 |
| 177 | 5.0 - 9.0% of mass 176 | 5.9 | ( 7.1 ) 2 |

1-Value is %mass 174 2-Value is %mass 176

| | EPA SAMPLE NO. | LAB SAMPLE ID | LAB FILE ID | DATE ANALYZED | TIME ANALYZED |
|---|---|---|---|---|---|
| 01 | VSTD00525 | VSTD00525 | 90725A02 | 07/25/2007 | 0621 |
| 02 | VBLK25 | IQ61293-001 | 90725A03 | 07/25/2007 | 0644 |
| 03 | Y3CQ2RE | IG25002-002 | 90725A14 | 07/25/2007 | 1108 |
| 04 | Y3CQ1RE | IG25002-001 | 90725A15 | 07/25/2007 | 1130 |
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